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2013 Pesticide Safety - Preventing Tick-Borne Diseases

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Preventing Tick-Borne Diseases

Deer Ticks

...one bite can change your life...

Larry Dapsis

Deer Tick Project
Coordinator/Entomologist

Cape Cod Extension

www.capecodextension.org

508-375-6642

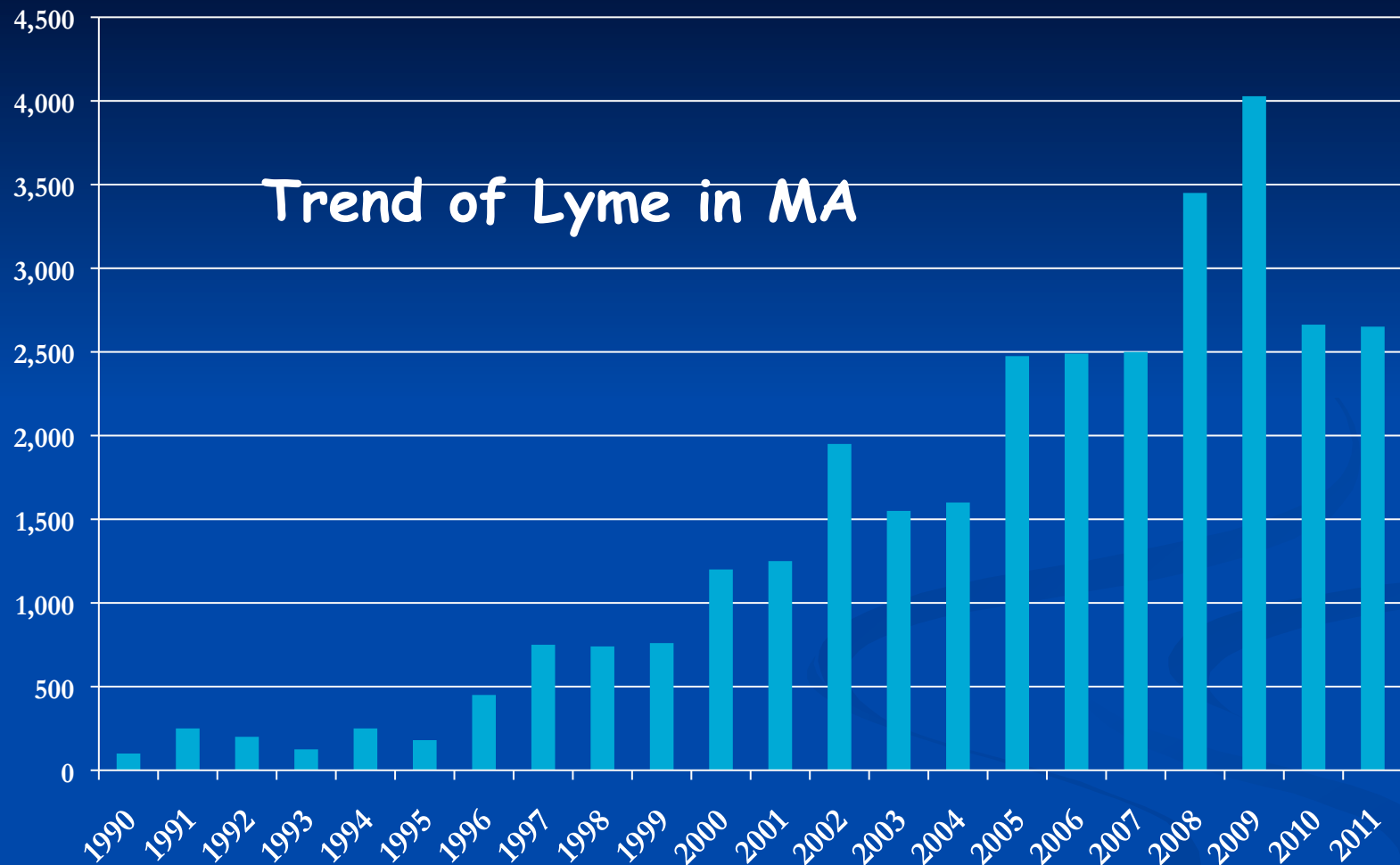


- Deer ticks are the teeny-tiny carriers of Lyme disease, an illness that can lead to symptoms ranging from to memory loss.



- Increased problems. Adult-sized deer ticks are thriving throughout much of the Northeast and parts of the Midwest.

Confirmed cases of Lyme - MA



2nd Most Prevalent Infectious Disease - Hep C is 1st! Numbers are not accurate but the trend is real in that Lyme is way under-reported...thought to be 10X higher than data show (can be misdiagnosed and the test is not that reliable)!

- Only Deer Ticks transmit Lyme Disease (dog ticks do not)
- 50% of all **adult** deer ticks are infected
 - need >48 hours attachment to transmit
 - 20% get the chance
- 25% of all **nymph** deer ticks are infected
 - need >24 hours attachment to transmit
 - 75% get the chance

- Studies show that of the ticks people find biting them, about 75% of the nymphs and 20% of the adult females have been attached long enough to have transmitted pathogens.

Risk of infection is year round, but the
greatest risk...

is NOT the tick adults

Fall thru Spring, 50% infected with
Lyme

Bite more likely to be detected



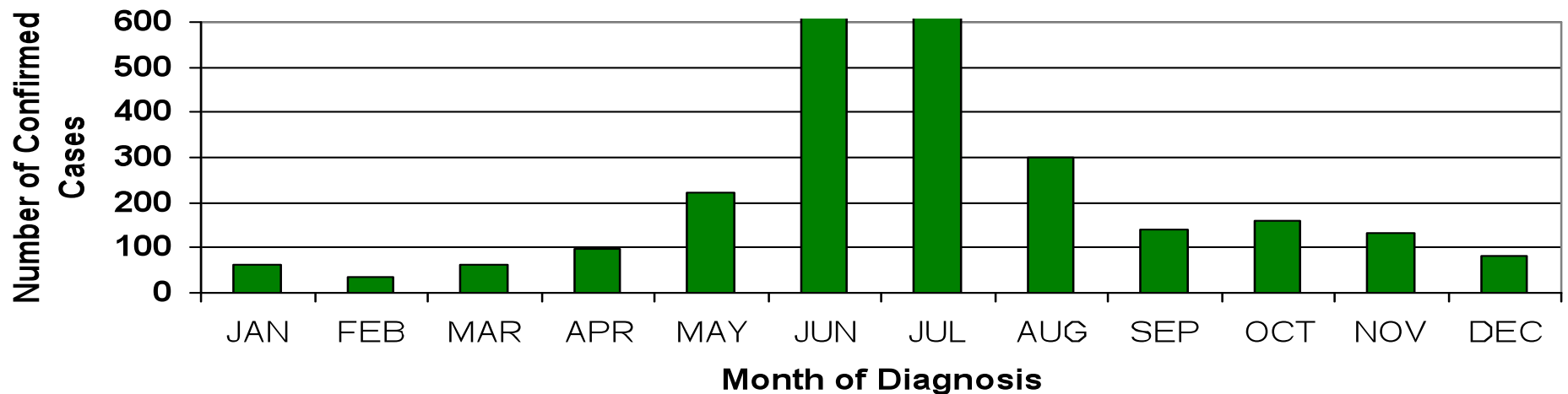
...it's from the nymph stage

Late May into August, 25%
infected with Lyme

Bite is difficult to detect



Number of Confirmed Lyme Disease Cases Reported in Massachusetts, by Month of Onset, 2011

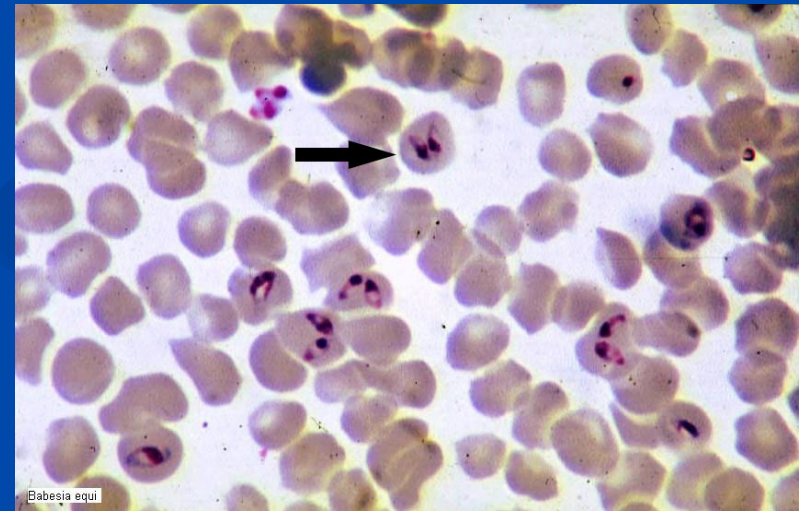


About 85% of all Lyme cases occur during the summer

Other Diseases Transmitted by Deer Ticks

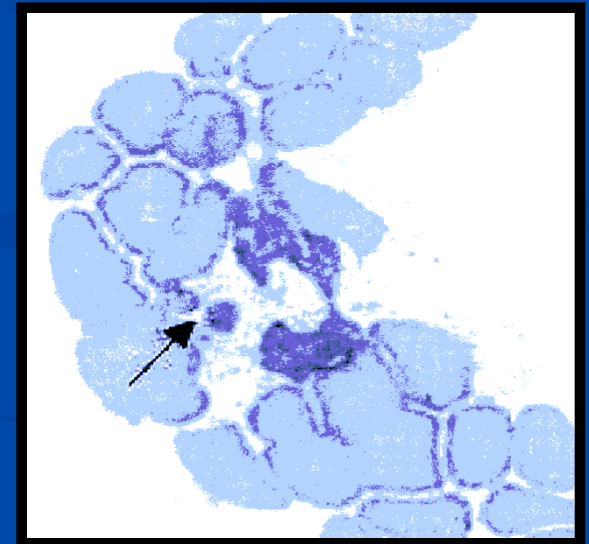
- Babesiosis

- Invades Red Blood Cells (malarial-like)
- Symptoms include fever/chills, severe anemia



Other Diseases Transmitted by Deer Ticks

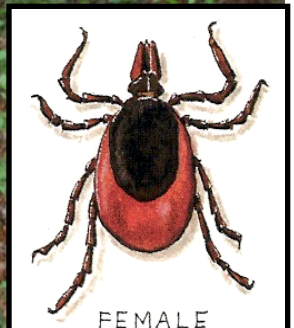
- Anaplasmosis (HGA)
 - Invades White Blood Cells
 - Symptoms include fever, nausea, headache...



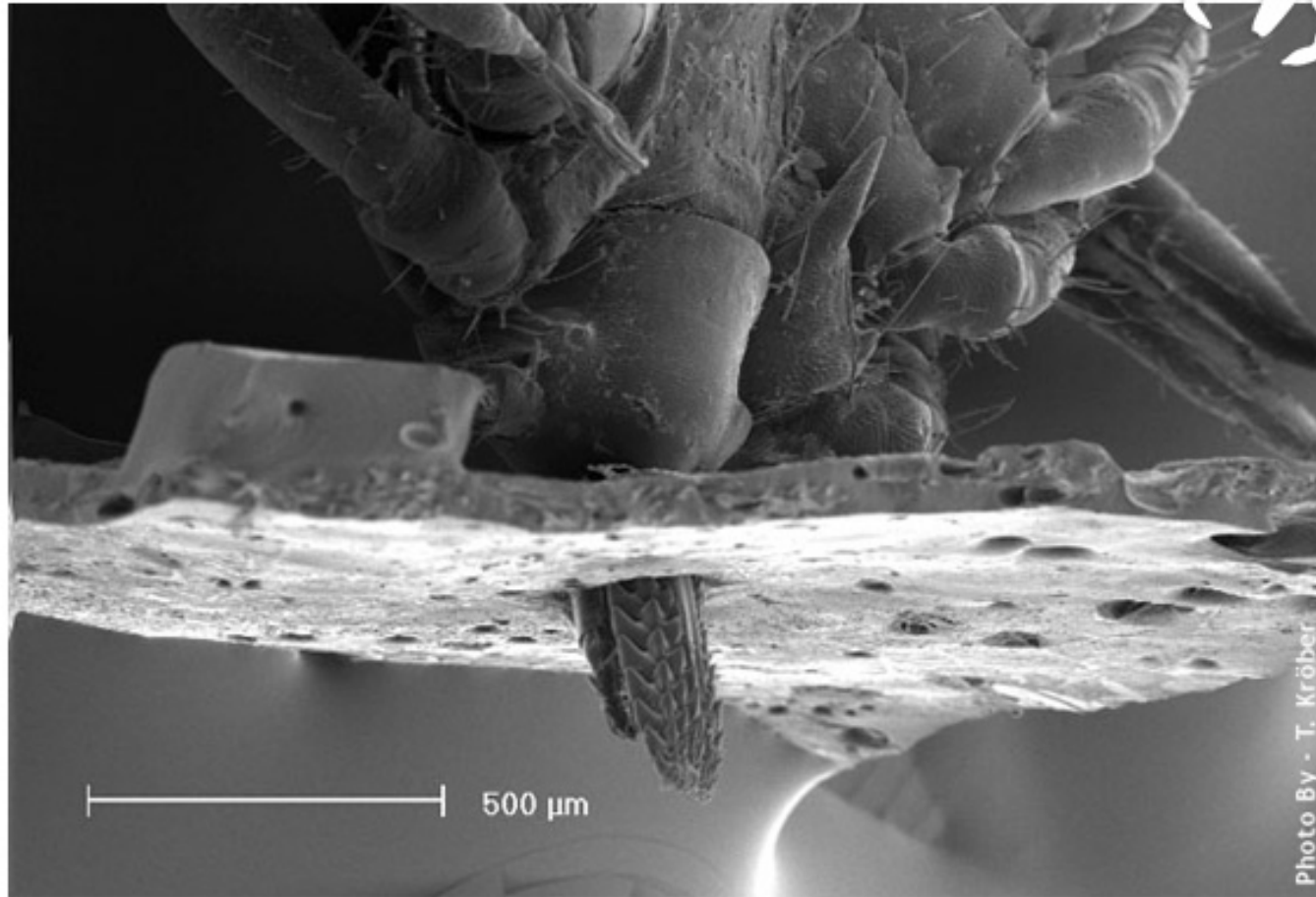
2011 MA	Lyme	Babesiosis	Anaplasmosis
Total	2,651	191	140
Cape & Islands	241	103	31

Over half of the cases of Babesiosis in MA occurred on the Cape & Islands

Both Babesiosis & Anaplasmosis doubled since 2010

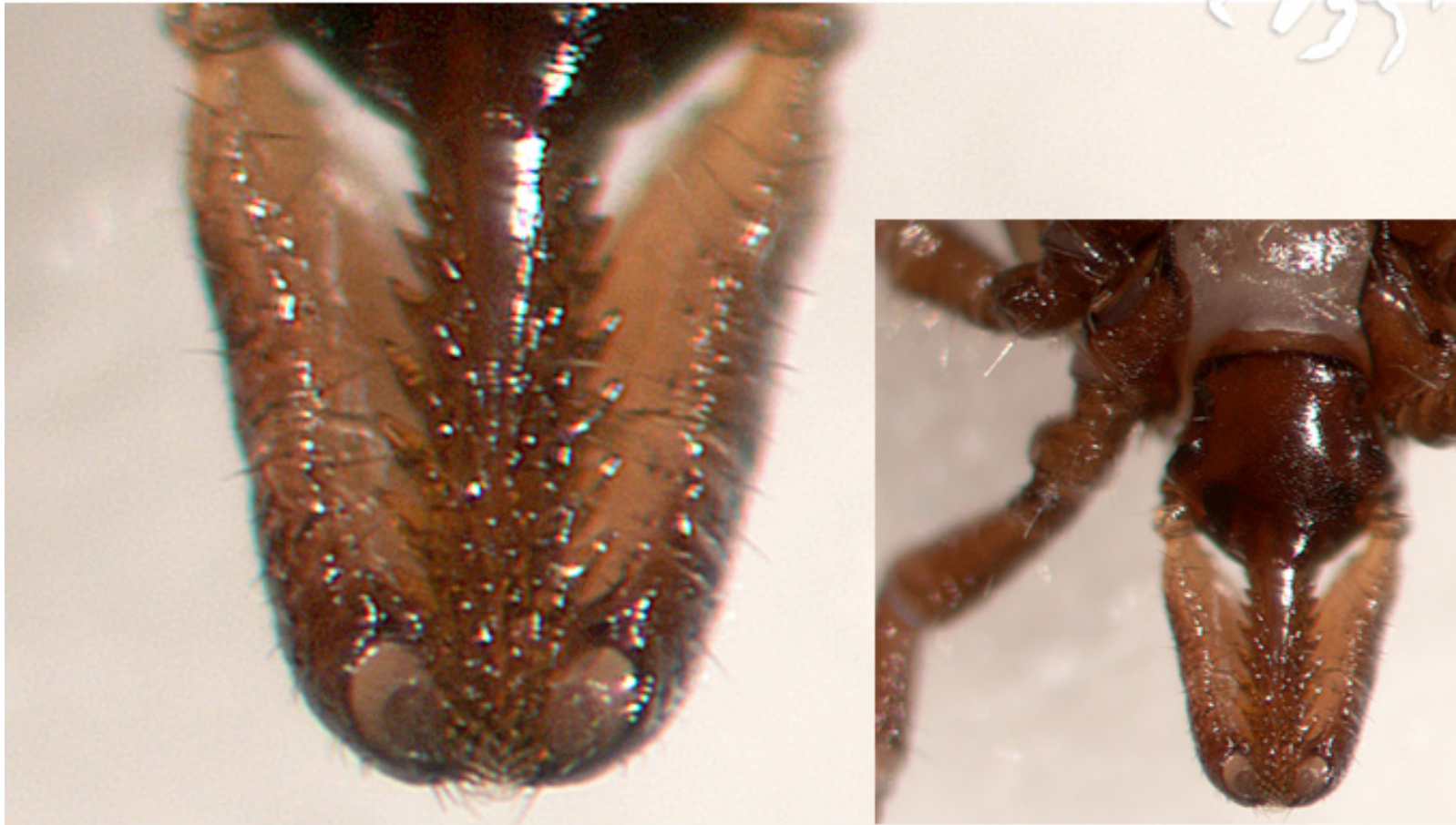


Tick **Bite**-ology



Ticks cut a hole in the skin and insert their mouthpart (hypostome). This is the extent to how far they can penetrate.

Tick **Bite**-ology



The backward-pointing barbs (denticles) and a secreted cement substance help secure the tick in your skin while they suck blood.

Tick *Bite*-ology



Ticks spit saliva into the host while they feed. Tick saliva contains many bioactive substances to mask pain signals from the bite, to prevent coagulation of the blood, and to overcome many other host-derived immune defenses.

Tick Repellent Clothing – Permethrin



Fabric only...
Active thru 6
washings

Many Brands

- *Ben's,
Permanone,
Repel,
Sawyer ...*

Note, Permethrin is an insecticide that repels and kills ticks. Read the Label...

Pre-treated Tick Repellent Clothing

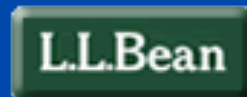


www.insectshield.com

- Proprietary process to bond permethrin to fabric...

- Other brands...one supplier, Insect Shield

- 70 Washings EPA Claim



**EMS, DICK'S, and
BASS PRO SHOP**

**Highly Effective....60 Seconds contact enough to
kill Adult Stage Deer Ticks...*Cape Cod
Cooperative Extension 2011***

**Treat footwear as well! Nymph stage ticks
are at ground level...**



Increase in **deer** populations

- Cape Cod
8-10 per square mile
- Nantucket
50 per square mile
- Martha's Vineyard
40 per square mile

Four Poster Deer Feeding Station

Filled with dried corn, Deer feed + rub on paint rollers – 4 posts treated with permethrin, 42 stations on cape + islands, 3 yr epa funded



2011-09-25 5:39:25 PM M 1/3

76°F



HC600 COVERT

RECONYX



“Deer” Tick...

- Is a misnomer
- 125 local warmblooded animals get ticks
- Including birds!

:22:01 AM M 3/3



2011-10-05 12:26:18 AM M 2/3



HC600 COVERT

RECONYX

2011-10-02 8:15:15 PM M 2/3

61°F



HC600 COVERT

RECONYX

Top Ten Things Everyone Should Know About Ticks These Days



- Ticks crawl up
- All ticks come in small, medium and large (larvae, nymphs, adults)
- Ticks can be active even in the winter
- Ticks carry disease-causing microbes

Tom Mather, University of Rhode Island

Top Ten Things Everyone Should Know About Ticks These Days



- Only deer ticks transmit Lyme disease bacteria
- For most tick-borne diseases, you have at least 24 hours to find and remove a feeding tick
- Deer tick nymphs look like a poppy seed on your skin

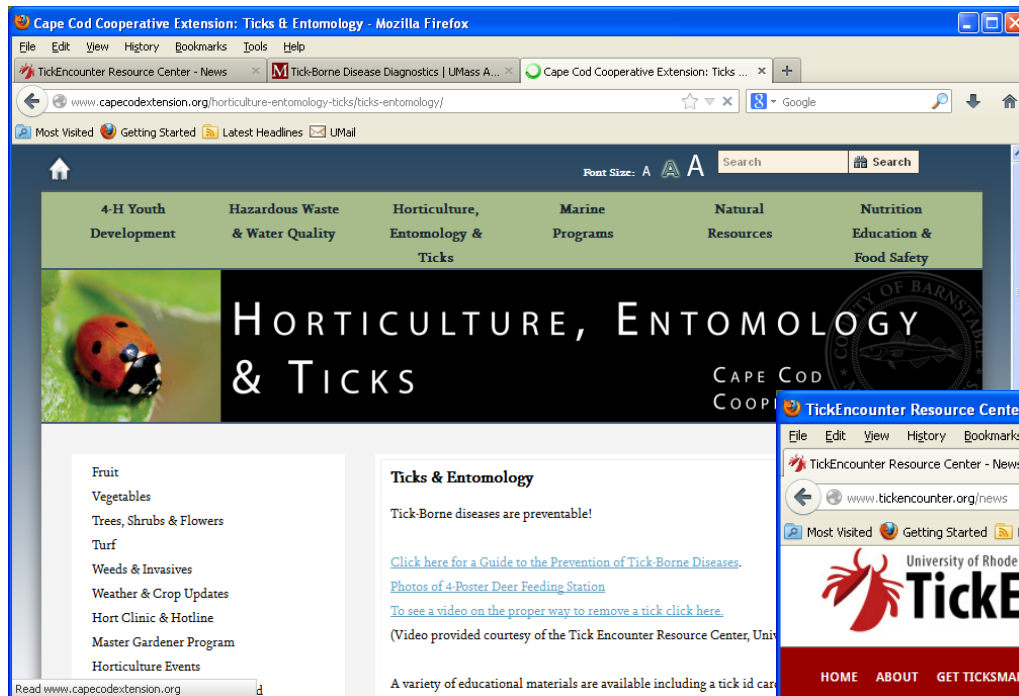
Tom Mather, University of Rhode Island

Top Ten Things Everyone Should Know About Ticks



- The easiest and safest way to remove a tick is with a pointy tweezer
- Clothing with built-in tick repellent is best for preventing tick bites
 - Permethrin treated clothes
 - Treat your own clothes
- Tick bites and tick-borne diseases are completely preventable!!

Tom Mather, University of Rhode Island



Larry Dapsis,
Cape Cod Extension



Tom Mather, University of Rhode Island

Tick-Borne Disease Diagnostics | UMass Amherst Center for Agriculture - Mozilla Firefox

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ag.umass.edu/services/tick-borne-disease-diagnostics

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Tick-Borne Disease Diagnostics

We test ticks every week.

We open the mail every Tuesday and begin analyzing ticks on Tuesday afternoon. Results are sent out at the end of the week.

We can now test for 10 different tick diseases, including Rocky Mountain Spotted Fever (carried by American dog ticks) and *Borrelia miyamotoi*, a relative of Lyme disease recently found in the U.S. See the link below to determine which diseases are most appropriate for testing



As the weather warms up, we start to see more adult deer ticks that have overwintered. They are not killed by frost or cold. Adults are be active through spring, seeking blood from their hosts.

Tick Analysis, University of Massachusetts

Pesticide Safety Training

Wareham Elks

- April 9, 2013
- 8 am -12 noon
- UMA 2013-65